

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (Currently Amended) A device for producing hydrogen, comprising:
a container housing a water-based solution consisting essentially of water and a metal constituent catalyst; and
a generator that ultrasonically irradiates said water-based solution ~~in the presence of said metal constituent to produce operably ablating a surface of said metal catalyst, removing oxide from said surface and providing hydrogen gas.~~
2. (Currently Amended) The device of claim 1 wherein said water-based solution is liquid water free of at least one of a chelating agent and a metal hydride.
3. (Currently Amended) The device of claim [[1]] 2 wherein said generator ultrasonically irradiates said water-based solution and said metal constituent solution further comprises an antifreeze agent.
4. (Currently Amended) The device of claim 1 wherein said metal constituent catalyst comprises a plurality of metal particles.
5. (Currently Amended) The device of claim 4 wherein said water-based solution and said metal constituent constitute is a heterogeneous mixture.

6. (Currently Amended) The device of claim 1 wherein said metal constituent catalyst comprises at least one metal plate.

7. (Currently Amended) The device of claim 1 wherein said metal constituent catalyst coats an interior surface of said container.

8. (Original) The device of claim 1 wherein said generator is housed in said container.

9. (Original) The device of claim 1 wherein said container comprises a head space that retains said hydrogen gas.

10. (Original) The device of claim 1 further comprising a compressor that extracts said hydrogen gas from said container.

11. (Currently Amended) The device of claim 1 wherein said metal constituent catalyst is ~~comprises at least one selected from the group consisting of~~ aluminum (Al), magnesium (Mg), iron (Fe) and Zinc (Zn).

12. (Currently Amended) The device of claim 1 wherein said metal constituent catalyst comprises at least one selected from the group consisting of aluminum (Al), alloys of Al, magnesium (Mg), alloys of Mg, iron (Fe), alloys of Fe, zinc (Zn) and alloys of Zn.

13. (Currently Amended) A power supply system that processes hydrogen to produce power, comprising:

a container housing a water-based solution and a metal constituent catalyst;
a generator that ultrasonically irradiates said water-based solution in the presence of said metal constituent catalyst to produce hydrogen gas; and
a ~~power plant~~ fuel cell that consumes said hydrogen gas to produce a power output[[.]]; and

a supply unit with an inlet in fluid communication with said container, an outlet in fluid communication with said fuel cell, and a compressor that extracts said hydrogen gas from said container.

14. (Currently Amended) The power supply system of claim 13 wherein said water-based solution is ~~liquid water~~ essentially free of at least one of a chelating agent and a metal hydride.

15. (Currently Amended) The power supply system of claim 13 wherein said metal constituent catalyst comprises a plurality of metal particles.

16. (Currently Amended) The power supply system of claim 15 wherein said water-based solution and said metal ~~constituent~~ catalyst constitute a heterogeneous mixture.

17. (Currently Amended) The power supply system of claim 13 wherein said metal ~~constituent~~ catalyst comprises at least one metal plate.

18. (Currently Amended) The power supply system of claim 13 wherein said ~~power plant fuel cell~~ is an engine that produces drive torque.

19. (Currently Amended) The power supply system of claim 13 wherein said ~~power plant~~ is a fuel cell that produces electrical power.

20-21. (Cancelled).

22. (Currently Amended) The power supply system of claim 13 wherein said hydrogen gas is produced at a pressure directly consumable by the ~~power plant fuel cell~~.

23. (Original) The power supply system of claim 13 wherein said generator is housed in said container.

24. (Original) The power supply system of claim 13 wherein said container comprises a head space that retains said hydrogen gas.

25. (Currently Amended) The power supply system of claim 13 wherein said metal constituent catalyst is comprises at least one selected from the group consisting of aluminum (Al), magnesium (Mg), iron (Fe) and Zinc (Zn).

26. (Currently Amended) The power supply system of claim 13 wherein said metal constituent catalyst comprises at least one selected from the group consisting of aluminum (Al), alloys of Al, magnesium (Mg), alloys of Mg, iron (Fe), alloys of Fe, zinc (Zn) and alloys of Zn.

27-38. (Cancelled).

39. (New) A power system comprising:

a hydrogen gas producing device comprising an ultrasonic generator and a container filled with at least one metal catalyst and water that is free is of at least one of a chelating agent and a metal hydride;

a power plant operable to convert hydrogen gas into an output of power;

a supply system operably feeding hydrogen gas produced by said device to said power plant;

a controller operably controlling operation of said power system; and

an operator input.

40. (New) The power system of claim 39 wherein said at least one metal catalyst is aluminum (Al).

41. (New) The power system of claim 39 wherein said at least one metal catalyst comprises at least one selected from the group consisting of aluminum (Al), alloys of Al, magnesium (Mg), alloys of Mg, iron (Fe), alloys of Fe, zinc (Zn) and alloys of Zn.

42. (New) The power system of claim 39 wherein said controller operably controls at least one of the group consisting of said ultrasonic generator, said container, said supply system, and said power plant.

43. (New) The power system of claim 39 further wherein said operator input is at least one of a power setting, a grid demand, or a throttle setting.

44. (New) The power system of claim 39 wherein said water further comprises an antifreeze agent.

45. (New) The power system of claim 39 wherein said ultrasonic generator is housed in said container.

46. (New) The power system of claim 39 wherein said supply unit comprises an inlet in fluid communication with said container and an outlet in fluid communication with said power plant.

47. (New) The power system of claim 39 wherein said supply unit comprises a compressor that extracts said hydrogen gas from said container.

48. (New) The power system of claim 39 wherein said hydrogen gas is produced at a pressure directly consumable by the power plant.

49. (New) The power system of claim 39 wherein said power plant is a fuel cell operable to produce electricity.

50. (New) The power system of claim 39 wherein said power plant is part of an automotive vehicle.

51. (New) A device of claim 1 wherein said device is part of a vehicle.

52. (New) The power supply system of claim 13 wherein said power output moves a vehicle.